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Research Report

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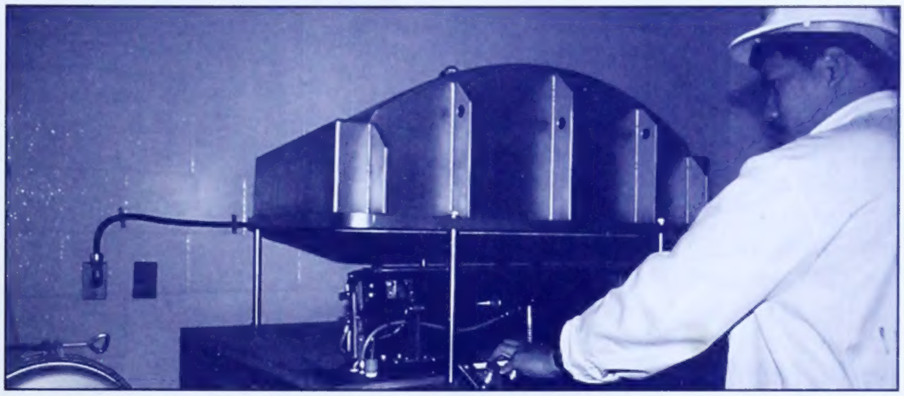
Alberta Agricultural Research Institute • AARI Winter 1994



High-tech packaging equipment can add weeks to the storage life of fresh pork.

Technology extends storage life of pork

Potential savings and new markets with innovative packaging

The number one factor determining consumer acceptance of fresh red meats is colour. The fresh red "bloom" of pork and beef quickly disappears in the presence of oxygen, which can easily pass through the thin plastic wrap over styrofoam trays.

In today's fast-paced world, consumers demand convenience and diversity in retail meat cuts. To eliminate additional handling and the cost of packaging meats at the retail level, recent interest has pointed to centralized processing of retail-ready cuts of red meats. To implement this system, a significant increase in the normal storage life of fresh chilled pork would be required for lengthy distribution and transit.

According to the "Alberta Pork Production Handbook", pork consumption and production is on the increase domestically. Great potential also exists for marketing fresh Alberta pork in distant continental and overseas markets. The problem is that, for a variety of reasons, fresh pork is more perishable than other red meats.

With financial support from AARI's **Farming for the Future Research Program**, the problem was tackled by a multi-disciplinary team of researchers representing the University of Alberta, the University of Saskatchewan, Agriculture and Agri-Food Canada, and Alberta Agriculture, Food and Rural Development.

The technology used by the researchers was modified atmosphere packaging (MAP). Since oxygen is the main culprit in the decline of meat quality and its spoilage, the objective of using MAP was to replace a portion or all of the oxygen inside the food package - specially designed for MAP - with inert gases such as carbon dioxide and nitrogen.

The researchers were able to store display-ready pork loin for 24 days (at an optimum temperature of minus 1.5° C) in sealed, foil-laminate packages containing 30 percent carbon dioxide and 70 percent oxygen. This was accomplished while still maintaining a subsequent 30 hour retail case shelf-life with the pork in air-permeable overwrapped trays.

The research was a fine example of partnerships using leading-edge technology for value addition to Alberta's agricultural products. The benefits of this research could provide substantial revenues to the pork industry and cost savings to the retail trade.

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AGRIS grows

Wealth of information at your fingertips

Like it or not, computers are here to stay. They have become part of almost every aspect of our lives. Agriculture is certainly no exception. The electronic superhighway runs down the remotest country road. In the area of agricultural research and technology transfer, AARI offers an informative database and software package. It is known as **AGRIS**, an acronym for Agricultural Research Information System.

AGRIS is not simply a bulletin board system. Primarily, it is a database of project summaries from four of AARI's research and technology transfer programs: **Farming for the Future(Research Program** and **On-Farm Demonstration Program); Matching Grants** and **Research Coordination**. It also contains helpful communications software.

As more people in the agricultural community use computers, AGRIS use continues to grow among those with a research interest. Over 200 calls and 150 downloads (information transfers) are made each month. And according to Kent Racher, AARI's AGRIS administrator, new information is constantly added. Racher advises, "In 1993, we added 600 ICAR project summaries of ongoing research in Alberta. ICAR is the Inventory of Canadian Agri-Food Research. Also, project summaries are now being added from the the Prairie Agricultural Machinery Institute in cooperation with the Alberta Farm Machinery Research Centre."

At the present time, AGRIS is offered free of charge. It is available 24 hours a day, operates at 9600 baud, N, 8, 1 and can be accessed at (403)438-2209.

AGRIS is user friendly but if you have any problems, Kent Racher can be reached at 427-1956.

Changing of the guard

New chairman for AARI

On August 11, 1994, Mr. Ed Stelmach took the reins as Chairman of the Alberta Agricultural Research Institute's Board of Directors. Mr. Stelmach was appointed to the position by the Honourable Walter Paszkowski, Minister of Agriculture, Food and Rural Development.

Mr. Stelmach, elected MLA for the new constituency of Vegreville-Viking on June 15, 1993, replaces Dr. Bob Elliott, former MLA for Grande Prairie. AARI's new chairman continues to be an active member of Alberta's agricultural community. He was a 4-H club leader and, time permitting, continues as a producer on his family farm near Andrew. Ed was also a member of the Vegreville Health Unit Board. We welcome Ed to AARI and look forward to his leadership in agri-food research and technology transfer.

Research needs reviewed- forages and pulses

Forages represent Alberta's number one crop. In recent years, the importance of pulse crops - as food, feed and conservation crops - has risen dramatically in the province. Research plays a vital role in the success of both crop groups.

To identify additional research requirements for forages and pulses, AARI sponsored a review workshop on November 2, 1993. The two crop groups were reviewed separately. The reviews were held under **AARI's Agricultural Research Reviews Program,** in which participants identify research requirements for specific commodities, resources and disciplines. These needs are identified by producers, processors, private associations, academic and government representatives.

The first review for pulses and forages was held in December, 1989. The Program is in its second cycle, during which more leading-edge research needs are identified. General recurring themes in the pulse and forage reviews were the need for: partnerships; focus on pioneering research; cooperative efforts to avoid research duplication; and speedy transfer of new technology to end-users. Summary documents for each review can be obtained from the Research Division of Alberta Agriculture, Food and Rural Development.

TechTransfer

Editor's note: *TechTransfer* begins as a regular column in *Research Report*. It will feature examples of technology transfer to the production sector and agri-food processing industry. The editor welcomes ideas or articles (in finished form) that illustrate examples of successful technology transfer at work on the farm or in a processing establishment.

Spay plus implant for profit

Simple technology adds value to livestock sector

"I knew that spaying and implanting heifers would be profitable but had no way to back it up with hard figures." Dean Porter, a cattle producer and feedlot operator near Czar took his case to field and headquarters staff of Alberta Agriculture, Food and Rural Development (AAFRD). They assisted him in determining the increased value of spaying-implanting in a **Farming for the Future On-Farm Demonstration Program** project.

In short, Mr. Porter was absolutely right. The practice already addssignificant value to Alberta's livestock sector and further growth potential is high. According to Dr. John Basarab, AAFRD's Beef Management Specialist in Edmonton, "Proper spaying with the Willis instrument, in combination with anabolic steroid implanting, means about $750,000 a year to the industry, at the current spay-implant level of only three percent. The profit share increases as you go up the line. The cow-calf producer takes about 15 percent, the feedlot 33 percent and the packing house 52 percent."

In the on-farm project, spaying was done with a simple but effective tool known as the Willis instrument. Used in the United States and other countries, it removes ovaries from heifers with very little stress to the animal. "In fact," says Dr. Basarab, "an experienced veterinarian can perform the service with less duress to the cow than a regular pregnancy check. The key is having that experience available to producers."

The reason for spaying is to prevent pregnancy and to render heifers less active on pasture and in the feedlot. Combining implantation with spaying results in an average weight gain of 5-10 percent, most of which is muscle for desirable leaner meat.

"The veterinarian in our project, Dr. Norm Habermehl, developed a high skill level with the method and has since gone on to instruct at the Western College of Veterinary Medicine in Saskatoon, and, recently, at the Okotoks Animal Clinic," says Dr. Basarab. "The cost of the process is only $9/head, compared to $26/head due to increased sickness and death if the procedure is performed by vets unfamiliar with the procedure.

Training of veterinarians was one spin-off benefit of the project. Land management and sustainability benefits could also be tremendous. "Spaying means you can put heifers in with the rest of the herd. This means less pasture required, lower labour costs and overall improved land management," advises Dr. Basarab.

"We were extremely pleased with the results," says Mr. Porter. "We were lucky to work with such helpful people as John Basarab, Phyllis Day and Agnes Whiting from the Agriculture Department." Dr. Basarab believes the technology has much greater value addition potential given an adequate supply of veterinarians familiar with the technique and a greater acceptance of the method by the industry.

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Report from the Chairman

In the past year, I was appointed Chairman of the Alberta Agricultural Research Institute's Board of Directors. I am very pleased to serve the cause of agri-food research in this capacity and look forward to furthering AARI's record of excellence as the leading agricultural research funding and coordinating agency in Alberta.

As AARI's third Chairman since its establishment in 1987, I inherit a legacy of able leadership, from the Board's original and longstanding Chairman, Mr. Bob Bogle, to Dr. Bob Elliott, whose time heading the Board was "short but sweet". As Dr. Elliott resigned his position since the last *Research Report*, I would like to take this opportunity to thank him for his efforts on behalf of the Institute.

I mentioned AARI's highly successful track record. Its research and technology transfer programs have been well-supported by the Government of Alberta. This is due to a long list of achievements that include, to name a few:

- New and improved crop varieties regionally adapted to Alberta growing conditions.
- Increased livestock productivity, improved animal nutrition and technological advances in fighting livestock disease.
- Improved management practices for conservation of our precious soil and water resources.
- Development of value-added food products of high quality, safety and nutritional content.

Those of us associated with the Institute are pleased and proud of the positive light cast on agricultural research, generally, and AARI programs, in particular, during the public consultation process of the past two years. In the *Creating Tomorrow* public consultation, research was identified as an essential element for Alberta producers and processors to compete globally, and to provide consumers with quality, affordable food products. *Seizing Opportunity*, Alberta's new economic development strategy document, identified research and innovation together as a key strategy for future growth.

We all face challenging economic times now and in the years ahead. Although the Government of Alberta is strongly committed to agricultural research as an investment for all Albertans, it is not possible to fund all of the many excellent project proposals we receive. We will rely more and more on cooperative efforts and partnerships to optimize the benefits from limited dollars available for research and technology transfer. With the expertise and positive spirit at our disposal, I am optimistic that future generations of Albertans will continue to reap a bountiful harvest from agricultural research in the province.

Mr. Ed Stelmach, MLA
Chairman, Board of Directors
Alberta Agricultural
Research Institute

Research Report is a publication of the Alberta Agricultural Research Institute. EDITOR: Patrick Marce, Communications Officer, Research Division of Alberta Agriculture, Food and Rural Development, #202, 7000-113 Street, Edmonton, Alberta T6H 5T6 (403)427-1956. Permission is granted to reproduce articles providing *Research Report* is credited. The editor welcomes typewritten articles or ideas pertaining to agricultural research and technology transfer. ©Alberta Agricultural Research Institute.

Dateline

April 19, 1994

Grains and oilseeds research review, J.G. O'Donoghue Building, Edmonton.

April 20, 1994

AARI Board of Directors meeting, J.G. O'Donoghue Building, Edmonton.

November 23, 1994

AARI's 1994 FARMING FOR THE FUTURE CONFERENCE, Edmonton Inn, Edmonton. One day conference.
Theme: "PARTNERS FOR LIFE". Emphasis on partnership building and integration of the entire agricultural chain, from farm to consumer.
AARI welcomes everyone with an interest in the benefits of research and technology to Alberta's agriculture and food industry.

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